

Federal Communications Commission

§ 25.218

rules for a particular frequency band after it has granted one or more space station or earth station licenses for operations in that frequency band, those licensees will be required to come into compliance with the frequency band-specific service rules within 30 days of the effective date of those rules, unless otherwise specified by either Commission or Bureau Order.

[68 FR 51508, Aug. 27, 2003, as amended at 70 FR 59277, Oct. 12, 2005]

§ 25.218 Off-axis EIRP envelopes for FSS earth station operations.

(a) This section applies to all earth station applications, except for:

- (1) ESV applications,
- (2) Analog video earth station applications,

(3) Applications for feeder-link earth stations in the 17/24 GHz BSS.

(b) Earth station applications subject to this section are eligible for routine processing if they meet the applicable off-axis EIRP envelope set forth in this section below. For purposes of this section, the term “extended Ku-band” is the 10.7 through 11.7 GHz, 12.75 through 13.25 GHz, and 13.75 through 14.0 GHz band. The term “conventional Ku-band” is defined in § 25.201 of this chapter.

(c) *C-band analog earth station operations.* (1) In the plane of the geostationary satellite orbit as it appears at the particular earth station location:

29.5–25log ₁₀ θ	dBW/4 kHz	For	1.5° ≤ θ ≤ 7°
8.5	dBW/4 kHz	For	7° < θ ≤ 9.2°
32.5–25log ₁₀ θ	dBW/4 kHz	For	9.2° < θ ≤ 48°
–9.5	dBW/4 kHz	For	48° < θ ≤ 180°

where θ is the angle in degrees from the line connecting the focal point of the antenna to the target satellite, and the geostationary orbit plane is determined by the focal point of the antenna and the line tangent to the arc of the geostationary satellite orbit at the position of the target satellite. For the purposes of this section, the peak EIRP of an individual sidelobe may not exceed the envelope defined above for θ between 1.5° and 7.0°.

For θ greater than 7.0°, the envelope may be exceeded by no more than 10% of the sidelobes, provided no individual sidelobe exceeds the envelope given above by more than 3 dB.

(2) In all other directions, or in the plane of the horizon including any out-of-plane potential terrestrial interference paths:

32.5–25log ₁₀ θ	dBW/4 kHz	For	3° ≤ θ ≤ 48°
–9.5	dBW/4 kHz	For	48° < θ ≤ 180°

where θ is the angle in degrees from the line connecting the focal point of the antenna to the target satellite, within any plane that includes that line, with the exception of the plane determined by the focal point of the antenna and the line tangent to the arc of the geostationary satellite orbit at the position of the target satellite. For the purposes of this section, the envelope may be exceeded by no more than 10% of the sidelobes provided no individual sidelobe exceeds the en-

velope given above by more than 6 dB. The region of the main reflector spillover energy is to be interpreted as a single lobe and shall not exceed the envelope by more than 6 dB.

(d) *C-band digital earth station operations.* (1) In the plane of the geostationary satellite orbit as it appears at the particular earth station location:

26.3–10log ₁₀ (N)– 25log ₁₀ θ	dBW/4 kHz	For	1.5° ≤ θ ≤ 7°
5.3–10log ₁₀ (N)	dBW/4 kHz	For	7° < θ ≤ 9.2°
29.3–10log ₁₀ (N)– 25log ₁₀ θ	dBW/4 kHz	For	9.2° < θ ≤ 48°

– 12.7–10log ₁₀ (N)	dBW/4 kHz	For	48° < θ ≤ 180°
--------------------------------------	-----------------	-----------	----------------

where θ and the plane of the geostationary satellite orbit are defined in paragraph (c)(1) of this section, and N is defined below. For the purposes of this section, the peak EIRP of an individual sidelobe may not exceed the envelope defined above for θ between 1.5° and 7.0°. For θ greater than 7.0°, the envelope may be exceeded by no more than 10% of the sidelobes, provided no individual sidelobe exceeds the envelope given above by more than 3 dB. For digital SCPC using frequency division multiple access (FDMA) or time division

multiple access (TDMA) technique, N is equal to one. For digital SCPC using code division multiple access (CDMA) technique, N is the maximum number of co-frequency simultaneously transmitting earth stations in the same satellite receiving beam.

(2) In all other directions, or in the plane of the horizon including any out-of-plane potential terrestrial interference paths:

29.3–10log ₁₀ (N)– 25log ₁₀ θ	dBW/4 kHz	For	3° ≤ θ ≤ 48°
– 12.7–10log ₁₀ (N)	dBW/4 kHz	For	48° < θ ≤ 180°

where θ is defined in paragraph (c)(2) of this section, and N is defined in paragraph (d)(1) of this section. For the purposes of this section, the envelope may be exceeded by no more than 10% of the sidelobes provided no individual sidelobe exceeds the envelope given above by more than 6 dB. The region of the main reflector spillover energy is to be

interpreted as a single lobe and shall not exceed the envelope by more than 6 dB.

(e) *Conventional Ku-band analog earth station operations.* (1) In the plane of the geostationary satellite orbit as it appears at the particular earth station location:

21–25log ₁₀ θ	dBW/4 kHz	For	1.5° ≤ θ ≤ 7°
0	dBW/4 kHz	For	7° < θ ≤ 9.2°
24–25log ₁₀ θ	dBW/4 kHz	For	9.2° < θ ≤ 48°
– 18	dBW/4 kHz	For	48° < θ ≤ 85°
– 8	dBW/4 kHz	For	85° < θ ≤ 180°

where θ and the plane of the geostationary satellite are defined in paragraph (c)(1) of this section. For the purposes of this section, the peak EIRP of an individual sidelobe may not exceed the envelope defined above for θ between 1.5° and 7.0°. For θ greater than 7.0°, the envelope may be exceeded by no more than 10% of the sidelobes, provided no indi-

vidual sidelobe exceeds the envelope given above by more than 3 dB.

(2) In all other directions, or in the plane of the horizon including any out-of-plane potential terrestrial interference paths:

24–25log ₁₀ θ	dBW/4 kHz	For	3° ≤ θ ≤ 48°
– 18	dBW/4 kHz	For	48° < θ ≤ 85°
– 8	dBW/4 kHz	For	85° < θ ≤ 180°

where θ is defined in paragraph (c)(2) of this section. For the purposes of this section, the envelope may be exceeded by no more than 10% of the sidelobes provided no individual sidelobe exceeds the envelope given above by more than 6 dB. The region of the main reflector spillover energy is to be interpreted as a single lobe and shall not exceed the envelope by more than 6 dB.

(f) *Conventional Ku-band digital earth station operations.* (1) In the plane of the geostationary satellite orbit as it appears at the particular earth station location:

15–10log ₁₀ (N)–25log ₁₀ θ	dBW/4 kHz	For	1.5° ≤ θ ≤ 7°
– 6–10log ₁₀ (N)	dBW/4 kHz	For	7° < θ ≤ 9.2°
18–10log ₁₀ (N)–25log ₁₀ θ	dBW/4 kHz	For	9.2° < θ ≤ 48°
– 24–10log ₁₀ (N)	dBW/4 kHz	For	48° < θ ≤ 85°
– 14–10log ₁₀ (N)	dBW/4 kHz	For	85° < θ ≤ 180°

where θ and the plane of the geostationary satellite orbit are defined in paragraph (c)(1) of this section, and N is defined below. For the purposes of this section, the peak EIRP of an individual sidelobe may not exceed the envelope defined above for θ between 1.5° and 7.0°. For θ greater than 7.0°, the envelope may be exceeded by no more than 10% of the sidelobes, provided no individual sidelobe exceeds the envelope given above by more than 3 dB. For digital SCPC using frequency divi-

sion multiple access (FDMA) or time division multiple access (TDMA) technique, N is equal to one. For digital SCPC using code division multiple access (CDMA) technique, N is the maximum number of co-frequency simultaneously transmitting earth stations in the same satellite receiving beam.

(2) In all other directions, or in the plane of the horizon including any out-of-plane potential terrestrial interference paths:

18–10log ₁₀ (N)–25log ₁₀ θ	dBW/4 kHz	For	3° ≤ θ ≤ 48°
– 24–10log ₁₀ (N)	dBW/4 kHz	For	48° < θ ≤ 85°
– 14–10log ₁₀ (N)	dBW/4 kHz	For	85° < θ ≤ 180°

where θ is defined in paragraph (c)(2) of this section, and N is defined in paragraph (f)(1) of this section. For the purposes of this section, the envelope may be exceeded by no more than 10% of the sidelobes provided no individual sidelobe exceeds the envelope given above by more than 6 dB. The region of the main reflector spillover energy is to be

interpreted as a single lobe and shall not exceed the envelope by more than 6 dB.

(g) *Extended Ku-band analog earth station operations.* (1) In the plane of the geostationary satellite orbit as it appears at the particular earth station location:

21–25log ₁₀ θ	dBW/4 kHz	For	1.5° ≤ θ ≤ 7°
0	dBW/4 kHz	For	7° < θ ≤ 9.2°
24–25log ₁₀ θ	dBW/4 kHz	For	9.2° < θ ≤ 48°
– 18	dBW/4 kHz	For	48° < θ ≤ 180°

where θ and the plane of the geostationary satellite orbit are defined in paragraph (c)(1) of this section. For the purposes of this section, the peak EIRP of an individual sidelobe may not exceed the envelope defined above for θ between 1.5° and 7.0°. For θ greater than 7.0°, the envelope may be exceeded by no more than 10% of the sidelobes, provided no

individual sidelobe exceeds the envelope given above by more than 3 dB.

(2) In all other directions, or in the plane of the horizon including any out-of-plane potential terrestrial interference paths:

24–25log ₁₀ θ	dBW/4 kHz	For	3° ≤ θ ≤ 48°
– 18	dBW/4 kHz	For	48° < θ ≤ 180°

where θ is defined in paragraph (c)(2) of this section. For the purposes of this section, the envelope may be exceeded by no more than 10% of the sidelobes provided no individual sidelobe exceeds the envelope given above by more than 6 dB. The region of the main reflector spillover energy is to be interpreted

as a single lobe and shall not exceed the envelope by more than 6 dB.

(h) *Extended Ku-band digital earth station operations.* (1) In the plane of the

§ 25.219

47 CFR Ch. I (10–1–09 Edition)

geostationary satellite orbit as it appears at the particular earth station location:

15–10log ₁₀ (N)–25log ₁₀ θ	dBW/4 kHz	For	1.5° ≤ θ ≤ 7°
– 6–10log ₁₀ (N)	dBW/4 kHz	For	7° < θ ≤ 9.2°
18–10log ₁₀ (N)–25log ₁₀ θ	dBW/4 kHz	For	9.2° < θ ≤ 48°
– 24–10log ₁₀ (N)	dBW/4 kHz	For	48° < θ ≤ 180°

where θ and the plane of the geostationary satellite orbit are defined in paragraph (c)(1) of this section, and N is defined below. For the purposes of this section, the peak EIRP of an individual sidelobe may not exceed the envelope defined above for θ between 1.5° and 7.0°. For θ greater than 7.0°, the envelope may be exceeded by no more than 10% of the sidelobes, provided no individual sidelobe exceeds the envelope given above by more than 3 dB. For digital SCPC using frequency division multiple access (FDMA) or time divi-

sion multiple access (TDMA) technique, N is equal to one. For digital SCPC using code division multiple access (CDMA) technique, N is the maximum number of co-frequency simultaneously transmitting earth stations in the same satellite receiving beam.

(2) In all other directions, or in the plane of the horizon including any out-of-plane potential terrestrial interference paths:

18–10log ₁₀ (N)–25log ₁₀ θ	dBW/4 kHz	For	3° ≤ θ ≤ 48°
– 24–10log ₁₀ (N)	dBW/4 kHz	For	48° < θ ≤ 85°

where θ is defined in paragraph (c)(2) of this section and N is defined in paragraph (h)(1) of this section. For the purposes of this section, the envelope may be exceeded by no more than 10% of the sidelobes provided no individual sidelobe exceeds the envelope given above by more than 6 dB. The region of the main reflector spillover energy is to be interpreted as a single lobe and shall not exceed the envelope by more than 6 dB.

[73 FR 70902, Nov. 24, 2008]

EFFECTIVE DATE NOTE: At 74 FR 9962, Mar. 9, 2009, § 25.218, which contains information collection and recordkeeping requirements, became effective with approval by the Office of Management and Budget for a period of three years.

§ 25.219 [Reserved]

§ 25.220 Non-conforming transmit/receive earth station operations.

(a)(1) This section applies to earth station applications, other than ESV applications and 17/24 GHz BSS feeder link applications, in which the proposed earth station operations do not fall within the applicable off-axis EIRP envelope specified in Section 25.218 of this chapter.

(2) The requirements for petitions to deny applications filed pursuant to this section are set forth in § 25.154.

(b) If an antenna proposed for use by the applicant does not comply with the antenna performance standards contained in § 25.209(a) and (b), the applicant must provide, as an exhibit to its FCC Form 312 application, the antenna gain patterns specified in § 25.132(b).

(c) [Reserved]

(1) The applicant must provide in its Form 312, Schedule B, the power and power density levels that result by reducing the values stated in §§ 25.134, 25.211, or 25.212, whichever is applicable, by the number of decibels that the non-compliant antenna fails to meet the antenna performance standard of § 25.209(a) and (b), or

(2) The applicant will not be permitted to transmit to any satellite unless the applicant has provided the certifications listed in paragraph (e)(1) of this section from the operator of that satellite(s).

(3) The applicant will not receive protection from adjacent satellite interference from any satellite unless the applicant has provided the certifications listed in paragraph (d)(1) of this section from the operator of that satellite(s) from which it plans to receive.

(d)(1) The applicant must submit the certifications listed in paragraphs